

Health Information and Research in India: An Overview

Dr Mukund Uplekar

(Sponsored by Commission on Health Research for Development)

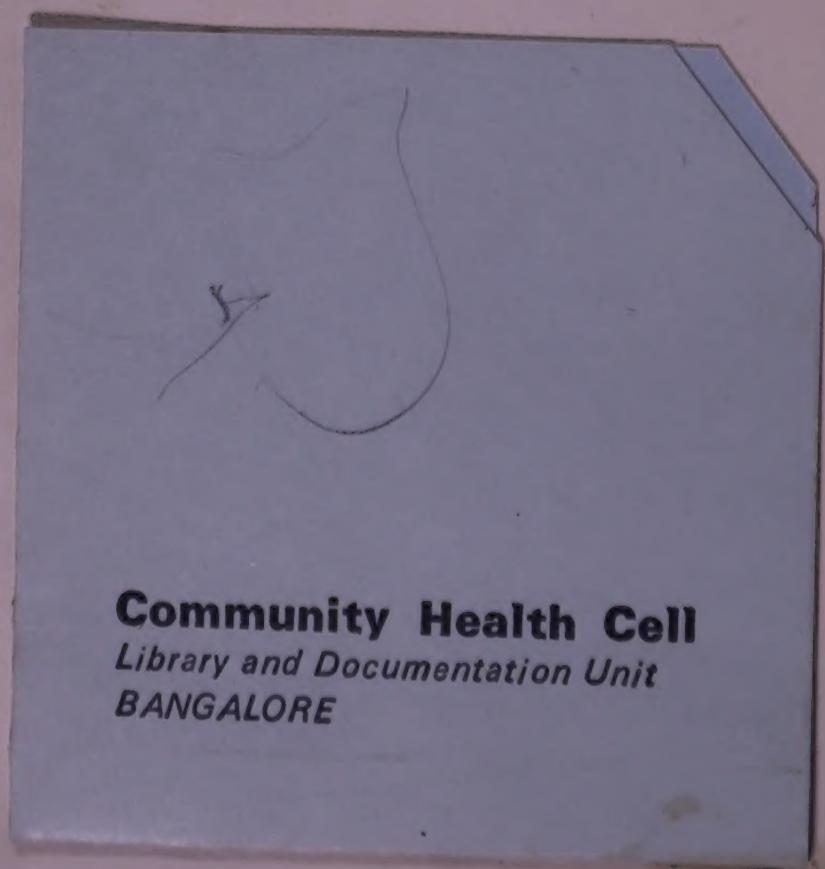
August 1990



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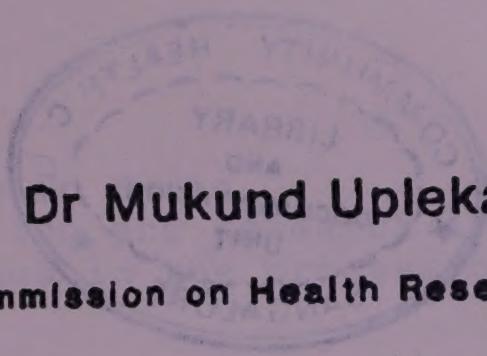
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Government and administrative documents
from many organizations and agencies
including the Central Health Policy
Planning Commission, the Indian Statistical
Institute, the government, and
the government health planning



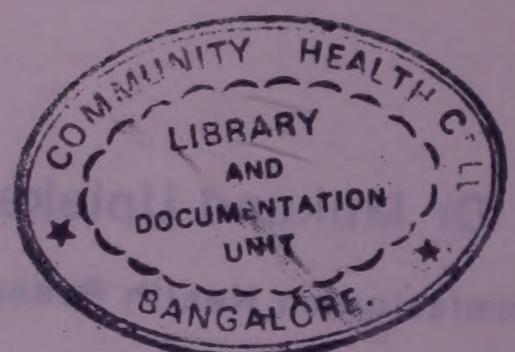
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Introduction

I.

- A. Government and administrative structure
- B. Health Services: Organization and Resources
- C. Evolution of National Health Policy
- D. Place of health information and research in health policy
- E. The present health priorities

II.

- A. Health planning in India.
- B. Health information and research inputs in planning process
- C. Some shortcomings in the process of health planning

III.

- A. The present sources of essential health information
- B. Towards computerized information systems

IV.

- A. Health research organization in India
- B. Manpower and resources for health research
- C. Health research priorities

Epilogue.

Introduction

1. Every seventh person in the world is an Indian. India has a land area of about 3.3 million sq. kilometers and ranks second only to China in population, with an estimated 806.7 million people. With only 2.4% of the global area, the country holds nearly 15% of the world's population, over 20% of the share of all the developing countries.
2. Since gaining its independence in 1947, considerable progress has been made in India in all spheres, including health status of the people. Smallpox has been eliminated; plague is no longer a problem; mortality from cholera and related diseases has decreased, and malaria has been brought under control to a considerable extent. The mortality rate per thousand people has been reduced from 27.4 to 11.1 and the life expectancy at birth has increased from 32.7 to over 58 years. A fairly extensive network of dispensaries, hospitals and institutions providing personnel, of various levels, has become available. Doctors and drug units are already in excess.
3. In spite of all the progress made during the last four decades after independence, however, the health of the common Indian continues to be poor. Health and development has yet to reach the 76.3% of India's population which lives in villages. Although the death rate declined more or less steadily from 1970 (15.7%) to 1981 (12.5%), the rural rate (13.7%) remains considerably higher than the urban rate (7.9%). Infant and maternal mortality rates are still very high, 95 and 5 per thousand live births respectively. The GNP per capita is low (\$300), with low levels of male (57%) and female (29%) literacy.
4. Communicable diseases continue to be responsible for a substantial proportion of morbidity and about one-third of mortality in India. Even conservative estimates project the poor health of the average Indian. Half of the world's 20 million TB patients are in India. One-third of 12 million leprosy patients in the world are Indians. About 14 million suffer from filariasis. 80% of our children suffer from some degree of malnutrition. Diarrhoeal diseases afflict innumerable millions, killing at least 1.5 million every year. Each year we have 3 million new cases of malaria, and a sizeable number of these malaria patients die of the disease. About one-quarter of deaths are due to diseases for which immunizing agents are available. Nearly 56% of the deaths are preventable. HIV infection is the latest addition to the already long list of communicable diseases that take a heavy toll not only in terms of human suffering but also in economic and social loss. Non-communicable diseases like cardiovascular disorders, cancer, accidents, cerebrovascular disease, mental illness and diabetes are also emerging as major causes of morbidity and mortality in the changing health profile

of the country.

5. Is the real picture of the health of the Indian people worse than what the available estimates show? A large volume of dispersed data on the incidence and prevalence of particular diseases in different parts of India does not easily lend itself to use as an indicator of the health status of the people. Hospital statistics present a partial picture, relating as they do to serious cases and to those who have access to medical facilities. All the same, some national estimates have been derived by extrapolating results of occasional studies, sample surveys and routine reports.

6. Research in health has a long history in India. Most of the research activity, however, is confined to the Indian Council of Medical Research and its network of institutions. There is a dearth of research in medical colleges and teaching institutions as well as in the private and voluntary sectors. The main problems in promotion of meaningful research addressing the major health problems facing the country appear to relate to availability of properly trained research workers, selection of areas of research, its quality and utilization, improvement in research capability and attainment of indigenous self-reliance in essential research.

7. The variations within the mosaic that is India are many, as evidenced, for example, by the stark contrast between the health status of the people of the state of Kerala and those of Bihar. The health and ill-health of the Indian population relate in a complex way to many factors, including geography, rural-urban differences, and economic, social and cultural factors. This diversity is reflected clearly in the political-administrative units -- 25 states and 7 union territories.

I.

A. Government and administrative structure

1. Indian union is a Sovereign Democratic Republic with a parliamentary system of government based on adult suffrage. The republic is governed in terms of its written constitution which is federal in nature. The President of India is the constitutional head, the real executive power having been vested in the Council of Ministers, with the Prime Minister responsible to the Lok Sabha (House of the People).

2. In the states, the Governor is the constitutional head executive, but the Council of Ministers with the Chief Minister, collectively responsible to the Legislative Assembly of the state

(Vidhan Sabha), really carries on the executive government. A system of local self-government, involving a 3-tier structure at the village, block and district levels, is designed to bring about economic, social and cultural development of rural India. In big cities there are elected municipal corporations, and in medium-sized and small towns there are municipal councils or committees.

3. Constitutionally, health is a "transferred subject" and the responsibility for implementation of all health programs rests with the state government. However, the Constitution lists spheres of responsibility for the center and the state governments in order to provide greater autonomy in health administration.

B. Health Services: Organization and Resources

1. In the post-independence period, an elaborate system for the delivery of health care services has been built up in India. This system consists of the structure of a health services organization, encompassing the Union, States, districts, and sub-district levels down to the village community, together with an extensive network of institutions for providing health services, for the training of health manpower, and for research.

2. At the top of the hierachial organization of health services are two advisory and policy formulating bodies -- the Central Council of Health and the Central Family Welfare Council, headed by the Union Minister of Health and Family Welfare and comprising all the states' Health Ministers. The Union Health Minister is assisted by a generalist administrator with the rank of Secretary from the Indian Administrative Service (IAS). The Ministry has two departments - the Department of Health and the Department of Family Welfare. The technical wing for health services, which provides specialist expertise to the health department, is known as the Directorate General of Health Services (DGHS). It is an "attached office" of the Ministry and is headed by the Director General of Health Services. The DGHS has 3 bureaus: Bureau of Health Planing, the Central Bureau of Health Intelligence (CBHI) and the Central Health Education Bureau (CHEB).

3. At the state level, the responsibility for providing health services lies with the state's Department of Health and Family Welfare, headed by a minister of cabinet rank; an IAS officer who functions as Secretary is in charge of administration. In a manner similar to DGHS at the Center, there are State Directorates of Health and Family Welfare, each headed by a Director. In some states there is a separate Directorate of Medical Education and Research, also headed by a Director. A senior officer in the Directorate of Health and Family Welfare oversees the district-level health administration, which in turn

is responsible for health services in rural areas. The state directorates also oversee the functioning of the Municipal Health Departments, which in turn are responsible for providing health services to urban populations.

4. The district-level organization varies somewhat from state to state. The district has a network of health institutions, including civil hospitals, rural or cottage hospitals, civil dispensaries, rural dispensaries, TB clinics, primary health centers and subcentres, and family welfare bureaux.

5. The Primary Health Center (PHC) is the core institution of the rural health services infrastructure in India. The Sixth plan envisioned the creation of 30-bed rural hospitals known as Community Health Centers (CHC) covering a population of 100,000. The CHCs are to provide mainly specialized curative services in Medicine, Surgery, Gynecology-Obstetrics and Paediatrics. The Primary Health Centers (PHC) give coverage to rural populations of 30,000, or 20,000 in hilly and tribal areas. The PHC has a network of subcentres, each serving a population of about 5,000. Each village or population of 1,000 is to have a Community Health Worker known as the Health Guide.

6. According to the 1988 estimates there are 9,831 public and private hospitals in India, with a total capacity of 585,889 beds. The urban orientation of medical services is evident from the fact that 68% (6,732) of hospitals and 84% (492,820) of beds are located in urban areas, although 70% of the Indian population is rural. There are various categories of hospitals, with the teaching-cum-research hospitals at the top. The distribution of doctors is equally skewed. Less than 20% of doctors serve in the rural areas where 76.3% of the population lives. On the other hand an overflow of doctors in the urban areas continues unabated.

7. 5,497 (56%) of hospitals are run by private and voluntary organizations, versus 4,042 (41%) by the Government and 292 (3%) by local bodies. The former are mainly concentrated in Kerala (1,894), Maharashtra (1,350), and Gujrat (1,211). Curative services are also provided through 14,286 urban dispensaries having a total of 7,723 beds, and through 13,209 rural dispensaries having a total of 16,123 beds. Some 13,579 dispensaries (2,187 beds) out of a total of 27,495 are in the private and voluntary sector, and these are mainly concentrated in Maharashtra and Gujrat.

8. An important component of the health services infrastructure is medical education and the training and development of different categories of personnel involved in delivery of health care services. The following table shows the present infrastructure and targets for rural health services in India.

Table 1 : Infrastructure for rural health services in India

Item/ Program	No. functioning as of Apr. 1985	Targets for 1985-1990	Total Requirements
Health Guides	350,000	100,000	450,000
Subcentres	82,946	54,883	137,000
Primary Health Centers	7,284	12,377	23,000
Community Health Centers	697	1,553	5,417
Training of female MPWs	80,000	60,000	130,000
Training of male MPWs	80,000	60,000	130,000
Training of female Health Assistants	15,000	6,500	21,500
Training of male Health Assistants	15,000	6,500	21,500

9. Despite recommendations of successive health committees on the necessity of allocating a minimum of 6 to 10% of the total plan investment for the health sector, the trend of plan investment in the health and family welfare sectors in India has been less than 4% of the total plan investment outlay for all heads of development. During the VIth plan period (1980-85), a sum of Rs. 34.4 billion was allocated to health and family welfare, which is only 3.1% of total plan outlay for development of Rs. 1,096.5 billion. In the VIIth plan period (1985-90), this allocation has increased to 3.7%, even though in absolute terms the plan outlay for this sector increased to Rs. 64.5 billion from the earlier Rs. 34.4 billion. Out of the plan budget, over three-fourths is spent in rural areas on an overall basis, although the distribution may vary from state to state. In addition to this plan budget, there is a large component of non-

plan expenditure. This amount is essentially for maintaining and running the already existing infrastructural facilities. The table shows the pattern of plan investment by the government. According to a senior health planner, it will be impossible to fulfill the brave resolves and ambitious national targets set for the year 2000 if the present scarcity of resources for the health sector is not taken care of.

Table 2: Pattern of Plan Investment in Health by the Government (Rupees in millions)

Period	Total outlay	Health	Family welfare	Total
First Plan (1951-56)	19,600	652	1	653 (3.3%)
Second Plan (1956-61)	46,720	1,408	22	1,430 (3.1%)
Third Plan (1961-66)	87,765	2,259	249	2,508 (2.9%)
Fourth Plan (1969-74)	157,788	3,355	2,780	6,135 (3.9%)
Fifth Plan (1974-79)	394,262	7,608	4,918	12,526 (3.2%)
Sixth Plan (1980-85)	975,000	18,211	10,100	28,311 (2.9%)
Seventh Plan (1985-90)	1,800,000	33,929	32,563	66,492 (3.7%)

10. The health sector in India is a part of social services. Data on the financing of social services in general and health services in particular are grossly inadequate. A good deal of additional work will be needed before a definite view of resources emerges. However, available figures suggest that funds allocated to the social sectors, including health, have been far below what is required, in view of both the continuing low educational and health status of much of the population, and the amounts invested in those developing countries that have reached much higher life expectancy and literary levels. Also, social spending remains much below average in the states with the lowest educational and health indicators. For instance, per capita

health expenditure in Bihar is one-half of the average for India as a whole. At the same time, in many states education and health have lost ground to various welfare schemes in the allocation of social sector resources. And within the health and education budgets, there has been no significant shift in composition toward services which benefit the poor disproportionately.

C. The Evolution of National Health Policy

1. The British involvement in the Indian subcontinent raised significant issues concerning sanitation and medical research. In particular, the plague epidemic of 1896 and Ronald Ross' malaria breakthrough in 1897 brought India to the threshold of many developments that took place between 1900 and 1935. Steps could have been taken at that time to focus policy on evolving public health machinery. However, the possibility of research also presented itself at this moment, and the colonial government, for its own reasons, chose the latter option. The escape into medical research, however, also remained half-hearted. When the bacteriological advances of the late 19th century brought curative medicine into the scientific arena and led to its increasing professionalization, this served as an argument for colonial policy to encourage the expansion of a private medical profession: a few medical colleges were a cheaper (but not necessarily an effective) alternative to expanding government resources for sanitary reforms for the general population. The growth of preventive and social medicine was irremediably preempted.

2. The formulations of later strategies for health policy and planning in India were largely guided by the recommendations of the National Health Committee of the National Planning Committee (1938), under the overall chairmanship of Pandit Jawaharlal Nehru and Col. Sokhey, and the Health Survey and Development Committee (1943), chaired by Sir Joseph Bhore. The Bhore committee report comprehensively reviewed various aspects of public health in India and formed the basis for post-independence policy.

3. With the attainment of independence, India adopted the instrument of planning for the purpose of socio-economic development and for raising the standard of living of the people. The provision of health services to the entire population was made a Directive Principle of State Policy in the constitution. Consequently, the health services organization and infrastructure have undergone extensive changes following reviews by a number of expert committees, namely the Mudaliar Committee (1962), Chhada Committee (1963), Mukherjee Committee (1966), Jungalwala Committee (1967), Kartar Singh Committee (1973), and Shrivastava Committee (1975). Progressive changes have been introduced in the policy and programmes over 7 five-year plan periods.

4. Prior to 1983, the Government lacked a clear and precise

policy on the nation's health care system, and health planning in the successive five-year plans merely varied the amount of financial allocations under certain heads. The National Health Policy of the Government of India was endorsed by the parliament in 1983. It presents an integrated plan based upon the salient findings of earlier committees and study groups, which had been set up by the Ministry of Health and Family Welfare and other allied agencies for the provision of comprehensive primary health care services. India's commitment to the goal of "Health for all by the year 2000" is reflected in the philosophy, approach, strategies and targets of the Policy.

5. The Policy emphasizes the need to restructure the existing health services according to the following broad approaches:

- a. The provision of a well-dispersed network of comprehensive primary health care services, integrally linked with extension and health education approaches, and drawing on the organized support of volunteers, auxiliaries, paramedics and adequately trained multipurpose workers.
- b. Large-scale transfer of knowledge, simple skills, and technologies to health volunteers selected by the communities and enjoying their confidence.
- c. The provision of organized back-up support through the establishment of a well-worked-out referral system.
- d. The establishment of a nation-wide chain of sanitary-cum-epidemiological stations, providing an integrated package of services to control/eradicate diseases, as well as tackling specific local environmental health problems.
- e. The utilization of untapped resources through organized logistical, financial and technical support to voluntary agencies active in the health field.
- f. The establishment of centers equipped to provide specialty and superspecialty services, and their appropriate dispersal in order to remove existing regional imbalances.
- g. First priority accorded to providing services to people living in tribal, hilly and backward areas, as well as to endemic-disease-affected populations and vulnerable sections.

6. The policy states the need for a 'health team approach' to the development of health manpower; the need for planned efforts to integrate the functioning indigenous practitioners of various systems - Ayurveda, Unani, Siddha, Homeopathy, Yoga and Naturopathy - within the overall health care delivery system; and the need to secure the small family norm, through voluntary efforts, and to move towards the goal of population

stabilization. It draws urgent attention to evolving and implementing time-bound strategies to tackle the problems of malnutrition; food adulteration; quality of drugs; water supply and sanitation; pollution and environmental protection; immunization; maternal and child health; and occupational health.

It goes on to recommend the need for nationwide public health education programs; the strengthening of the technological and manufacturing capability in the medical industry, particularly in the production of essential and life saving drugs and vaccines; the launching of nationwide health insurance schemes for mobilizing the community's resources; and comprehensive health legislation. It also calls for the balanced development of basic, clinical, and problem-oriented operational research in biomedical and allied sciences, and stresses the importance of intersectoral cooperation between related sectors such as drugs and pharmaceuticals, food and agriculture, water supply and drainage, housing, education and social welfare, and rural development.

7. The policy statement ends with a set of goals for health and family welfare programmes (Table 3). By the year 2000 AD, it visualizes a decrease in the infant mortality rate from the present 125 per thousand to below 60 per thousand, in the crude death rate from around 14 to 9 per thousand, in the maternal mortality rate from 4.5 to below 2 per thousand; rise in life expectancy at birth from 52.6 years for males and 51.6 years for females to 64 years for both the sexes; a fall in crude birth rate from around 35 to 21 per thousand and a net reproduction rate of 1 as against the current 1.48. The following table gives the goals set by the National Health Policy.

Table 3: Goals for Health and Family Welfare Programmes

No.	Indicator	Baseline	Goals	
		(1976-81)	1990	2000
1.	Infant Mort. Rate	125	87	<60
2.	Crude Death Rate	14	10.4	9
3.	Child Mort. Rate (1 to 5 years)	24	15-20	10
4.	Maternal Mort. Rate	4-5	2-3	<2
5.	Life Expectancy at Birth	52.6 (Male) 51.6 (Female)	57.6 57.1	64 64
6.	% Neonates weighing less than 2500 gm	30	18	10
7.	Crude Birth Rate	35	27	21
8.	Effective couple protection (%)	23.6	42	60
9.	Net Reproduction Rate	1.48	1.17	1
10.	Growth rate(annual)	2.24	1.66	1.2
11.	Family size	4.4	-	2.3
12.	Pregnant mothers receiving ANC (%)	40-50	60-75	100
13.	Deliveries by TBA	30-35	80	100
14.	Immunization coverage (%)			
	TT for pregnant women	20	100	100
	TT for school children	25	100	100
	DPT (below 3 yrs.)	25	85	85
	Polio (infants)	5	70	85
	BCG (infants)	65	80	85
	DT (school entrants)	20	85	85
	Typhoid (sch. entrants)	2	85	85
15.	Leprosy: % disease arrested cases out of those detected	20	60	80
16.	TB: % disease arrested cases out of those detected	50	75	90
17.	Blindness, incidence of(%)	1.4	0.7	0.5

Paralleling the efforts at formulating a new policy on health was the search for alternatives in the delivery of health care. In 1981, the ICMR-ICSSR study group on an Alternative Strategies for health services in India, consisting of prominent public health professionals and planners, was set up to formulate a strategy for providing health for all Indian people by AD 2000. The group's report stressed the need for simultaneous and complementary efforts in (a) socio-economic-political transformation, (b) family planning, and (c) interrelated fields such as nutrition, environment, and health education, for

achieving better health conditions.

D. The place of essential health information and research in the National Health Policy

1. The National Health Policy recognizes the importance of a streamlined national information system for health. Appropriate decision making and programme planning in the health and related fields is not possible without establishing an effective health information system. The policy recommends establishing a nationwide organizational system to procure essential health information. Such information, the policy document states, is required not only for assistance in planning and decision-making but also to provide timely warnings about emerging health problems, and for reviewing, monitoring and evaluating the various on-going health programs. The building up of a well-conceived health information system is also necessary for assessing medical and health manpower requirements and taking timely decisions, on a continuous basis, regarding the manpower requirements in the future.

2. The health research priorities documented broadly in the policy statement have great relevance to the present health research situation in India. The basic objective of medical research, and the ultimate test of its utility, would, the policy document observes, involve the translation of available know-how into simple, low-cost, easily applicable, appropriate technologies, devices and interventions suiting local conditions. It would thus place the latest technological achievements within the reach health personnel and front-line health workers in the remotest corners of the country. Therefore, besides devotion to basic, fundamental research, high priority should be accorded to applied, operational research, including action research for continuously improving the cost-effective delivery of health services.

E. The Present Health Priorities

The main priorities of the health sector - besides, of course, population control, which consumes a major chunk of the resources - are in tune with the National Health Policy. The emphasis, however, has always been on development of infrastructure and an institutional base for the provision of health care, with little attention paid to the quality of care provided or its acceptability to the people. The major broad priorities include:

1. Development of Primary Health Care Services
2. Implementation of the National Disease Control Programmes
3. Medical education and training

Mention must be made of the Primary Health Care Services, which

in the Indian context refers to the four-tier structure of the rural health services. It encompasses the health care provided at the first contact within the village, the subcentres, the primary health center, and the first referral level of services at the community health centers. This structure is also referred to as the Minimum Needs Programme (MNP) for health. At the national level, about 40% of the total health sector outlay is earmarked for development of health services under the MNP activities. About a dozen National Disease Control Programmes are in operation for prevention and control of particular diseases, some of which are tuberculosis, leprosy, malaria, filaria, endemic goiter, diarrhoeal diseases, etc. About 20 to 25% of health sector outlay is allocated for implementation of these programmes.

II.

A. Health Planning in India

1. Most of the states in India have a mechanism for creating individual state socio-economic development plans. The institutional mechanism available at the state level is a State Planning Board, which is responsible for drawing a detailed five-year plan for the state. These boards are supposed to interact closely with different developmental sectors in the state to make a consolidated state plan document. Each one of the sectors (such as health, education, social welfare, etc.) in the state departments has a planning cell which is responsible for drawing up the sectoral plan for the state government. Thus, the expected mechanism is an upward flow of plans from the departments of the state government, through their planning cells, to the state planning boards.

2. At the state level there is a Department of State Planning. This department works closely with the State Planning Board and, through the planning cells, with the respective departments of the state governments. The five-year plans/state annual plans are finalized at the state headquarters, taking into account the position of the state as well as its problems and priorities. The state plan is discussed in detail, and modified and finalized at the planning commission. Once the state five-year plans are prepared, they become an integral part of the national plan document, which includes details of both the state plans and the central plan. After close scrutiny by the full planning commission, this plan document is presented to the National Development Council for adoption. Once the National Development Council approves the plan, it becomes the national document of policies and programmes for the next 5 years.

3. The five-year plan of action is also disaggregated into annual plans of action. Each plan is discussed in detail by the planning commission at three levels. The first level of discussion is with the sector advisor. In the case of the health sector, the health Advisor in the planning commission has a detailed discussion with the state health representatives both in the secretariat and in the directorate of health services. These meetings, which are also attended by representatives of the central ministry of health and family welfare, the program implementation ministry, and related sectors, develop a view on the amount of resources required to run the health development programs of the state, according to its priorities. Needs and available resources are matched and married in the most appropriate manner. The availability of overall state resources guides decisions on outlays for the health sector; the recommendations made by the state government in this regard are also considered. The overriding goal of these discussions is to ensure the equitable handling of national priorities.

4. The second level of discussions in the planning commission takes place between the state plan advisors of the commission and the chief secretaries\planning secretaries\development commissioners, senior secretaries, and heads of departments of the state government. In these meetings the state plan advisor gains an overview of the total resources available in the state and the total needs of the state in different sectors of development. It is in these meetings that the relative importance of health compared to other sectors like education, irrigation and agriculture is decided, and a conclusion arrived at about the appropriate distribution of resources among development sectors. The state plan advisor is supported by information provided to him by the financial resources division of the planning commission, which gives a picture of the total state-government resources available for state developmental activities. This information is generated by the financial resource division of the planning commission in close interaction with the state government's finance and planning department, as well as with the ministry of finance at the central level.

5. The third level of discussion is between the chief ministers of the state and the deputy chairman of the planning commission. At this level, a final decision is taken on the total resources available for the state for both the five-year-plan period and the annual-plan period. This is an exercise in which both the economic and political compulsions of the state governments are kept in mind.

6. Thus, the planning commission at the national level is responsible for the country, as well as for disaggregating the national plan into annual-plan-of-action documents. It interacts, on the one hand with all the central ministries and departments, and on the other hand keeps a close liaison with the ministry of

finance in determining the total resources available at the national level. The planning commission further plays a vital role in determining the proportionate allocation of resources between the central and state governments. It interacts individually with all the ministries and departments of government of India, as it does with the state governments, to finalize their five-year and annual plans.

7. The National Development Council is the supreme body under the chairmanship of the Prime Minister of the country. NDC membership includes all the Chief Ministers of the state, all the Cabinet Ministers of the Government of India, and the Members of the Planning Commission. This body is responsible for final decisions both on resources and on policies and programmes for the five-year plans of the nation. Once the planning exercise is complete at the planning commission level, it is submitted to the NDC for its deliberations, debate and ultimate adoption as a national document.

In this planning exercise, constant negotiations take place between the Central level, through the planning commission, and the state governments. In the three-tier discussions in the planning commission -- at the level of the sectoral advisors, at the level of the state plan advisors, and at the final level between the deputy chairman of the planning commission and the chief ministers -- all outstanding problems and differing views on development are ironed out.

B. Health Information and Research Inputs into the Planning Process

1. Although a vast reserve of information is used consciously or unconsciously in the process of planning, there is no institutionalized mechanism to feed essential information and research inputs, on a continuous basis, into the planning apparatus. The vital inputs are provided by working groups set up for the purpose by the planning commission, which include national experts working within and outside the government. These are representatives from the three important wings of the public health sector, i.e., the policy wing formed by the health chapter of the planning commission, the implementation wing constituted by the central and state health ministries and directorates, and the research wing provided chiefly by the Indian Council of Medical Research. Eminent health researchers working for private and voluntary organizations are also invited to join relevant groups.

2. In preparation of the draft document on health for the 8th plan, for example, the planning commission instituted 11 working groups covering the major areas in health and family welfare. Those under family welfare include working groups on Population Control, Child Survival, Safe Motherhood and IEC (information,

education and communication), while those under health are for Primary Health Care, Non-Communicable Diseases, Medical Education and Training, Research and Development, Indian Systems of Medicine, and Health Financing and Management. Each group commissions various sub-groups to look into related specific areas. The sub-groups work for a period of about one-and-a-half years before producing a draft document. As a result, about 2,000 national experts working in different areas related to health contribute directly or indirectly to the process of planning.

C. Health Planning in India: Some Shortcomings

1. The entire process of health planning takes place almost exclusively in the public sector, although there is a prominent private sector involved in health care delivery at all levels.
2. The planning mechanism receives little feedback from the private, non-governmental, or organized sectors on the expenditure involved and the outcome of health care and research activities.
3. The health planners have little knowledge of the states' non-plan health expenditures. The non-plan expenditure by the states almost always exceeds two to three times the planned expenditure, although a major portion of it is spent on salaries and maintenance of infrastructure.
4. Although a vast amount of data is generated by the implementation and research wings of the health sector, and to some extent by private and voluntary agencies active in the area of health, there is no institutionalized mechanism by which the essential information and research findings can be analyzed and fed, on an ongoing basis, into the planning apparatus, or by which feedback can be provided to the implementing or researching agency.
5. Health planners do not have the easy access or the institutional base to address policy problems or research into those problems. During the 7th plan period, for the first time, some studies were commissioned by the planning commission to examine certain policy issues.

III.

A. The present sources of essential health information

Systematic collection and analysis of a variety of health and related information are most vital for planning, monitoring, and evaluating health and family welfare programmes. The main sources of data collection in the country are:

1. Decennial Population Census
2. Civil Registration System
3. Sample Registration System
4. Survey of Causes of Death
5. National Sample Survey
6. Family welfare statistics compiled by the Evaluation and Intelligence Division of the Department of Family Welfare, Ministry of Health and Family Welfare.
7. Integrated health information system operated by the Central Bureau of Health Intelligence, Ministry of Health and Family Welfare.

1. Decennial Population Census

The population census in India, first conducted in 1881, is a huge operation undertaken every 10 years. It provides detailed information on total population, including demographic and socio-economic characteristics. It also provides the basic data by which most rates may be computed.

2. Civil Registration System

The Civil Registration System (CRS) in India is more than a century old. In order to improve functioning of this system, a uniform law - "Registration of Deaths and Births Act" - was enacted in 1969 to make the reporting and registration of births and deaths compulsory.

Local registrars record all live-births, still-births and deaths. The "birth register" contains information on: date of occurrence/registration; sex of the child; age and literacy of the mother; order of birth (live); religion, literacy and occupation of the father; type of medical attention at birth; etc. The "Death Register" contains information on date of occurrence/registration; place of death; age, sex, marital status, religion and occupation of the deceased; cause of death; whether medically certified; kind of medical attention received; etc. Every registrar is supposed to send every month, to the Chief Registrar at state headquarters, true copies of entries in the birth and death registers for the preceding month. The chief

registrars of the states, in turn, are required to send to the Registrar General of India monthly and annual returns. The annual returns provide the basis for the annual Vital Statistics Report of the Registrar General of India.

The CRS in India is deficient, in spite of its long history, because of incomplete coverage and under-registration. For instance, comparison of the data on birth and death rates from the Vital Statistics Report covering up to 1979 with those from the Sample Registration System (SRS) shows that about 37.2 percent of births and about 48.7 percent of deaths were not registered in 1976 under the CRS. In some of the states the under-registration was very high, particularly in rural areas. Registration of infant deaths in the CRS is also grossly deficient. The recorded infant mortality rate in 1976 was only 49 per 1,000 live births, as versus 125 by SRS estimates. All-India sex ratios of registered births and deaths during 1976 were 111.6 and 120.3 males respectively per 100 females. Apparently, there was higher registration for males. Furthermore, there is a long delay in bringing out yearly Vital Statistics Reports.

There are many reasons for the poor performance of the CRS. First, a number of different agencies (including panchayat, police, health, revenue, and others) are entrusted with registering the vital events at different levels. In addition, there has not been effective implementation of the 1969 act; the executing agencies in the states have been slack; and the people have not been informed about the existence, location, or benefits of such information and their responsibilities with regard to its collection. About 80% of the population living in rural areas lack communication and accessibility to the registrar; the registrars lack training; and these data are not used for planning, monitoring or evaluating programme performance.

Improvement of the Civil Registration System is imperative, as it alone can provide the micro-level data required for planning and administrative purposes at relatively low cost.

3. Sample Registration System (SRS)

Because of the deficiencies of the CRS and in order to obtain more reliable estimates of fertility and mortality, the Sample Registration System (SRS) was initiated by the office of the Registrar General of India in 1964-65. The SRS has essentially three components:

- a. continuous enumeration, by a part-time enumerator, of vital events pertaining to the normal resident population of the sample unit;

- b. an independent half-yearly survey by a full-time supervisor;
- c. matching of events recorded by the enumerator and supervisor, followed by field verification of unmatched events.

The enumerator enlists the aid of the village priest, barber, village headman, midwife, etc., in obtaining information on all births and deaths in the sample unit. He contacts the informants at regular intervals and records the events on prescribed forms after contacting the households. At present the total number of sample units is 3,722, with the urban sample covering 1.2 percent of the total urban population and the rural sample covering 0.9 percent of the total rural population.

The data collected regularly under the SRS provide estimates of various fertility and mortality indicators over the years, at state and national levels, and for rural and urban areas. These estimates include crude birth rate, crude death rate, age- and sex-specific death rates, and infant mortality rates by age and sex. Such data provide the trend and pattern of fertility and mortality and also the fertility and mortality differentials among states and between different types of urban and rural areas. Furthermore, information of the type of medical attention at birth or before death serves as an indicator of the extent of medical help, institutional and professional, available at national and state level and in urban and rural areas.

This system has been able to provide reasonably accurate estimates of births and deaths. A comparison of the SRS data with the estimates provided by some demographers using different approaches gives support to the reliability of the SRS estimates in general.

A number of special surveys have also been carried out from time to time in SRS units, along with regular half-yearly surveys. Some of the relevant ones are mentioned below:

1. a 1972 fertility survey of a sub-sample of SRS households in each unit, with a view to studying the fertility differentials by socio-economic groups;
2. a 1979 survey on infant and child mortality, to provide estimates of child and infant mortality, as well as to study the pattern and differentials of fertility and mortality by socio-economic group and by health care of infant and children.

4. Survey of Causes of Death

Due to the paucity of medical personnel in rural areas, medical certification of cause of death is not feasible. The Office of

the Registrar General of India initiated a scheme, called the Model Registration Scheme, which is now known as Survey of Causes of Death (Rural). The aim is to ascertain through lay reporting the causes of death in rural areas, by using the services of paramedical personnel available at Primary Health Centers. Since 1980, field supervision has been rationalized and the survey is being conducted in about 1,200 PHCs -- i.e., about one-fifth of the total PHCs.

The medical officers in charge of PHCs play a major role in the survey by guiding and supervising the work of the field workers. It has been recommended that independent monthly field checks by the medical officer on the cause of death in at least two cases would provide an idea of the extent of discrepancy and would also help to improve field investigations. Statistics presented in the report, however, are representative of the health situation in the headquarter village of the PHC where the survey is carried out, and do not hold true for the entire area under the jurisdiction of the PHC. Field conditions in the remote villages may be different.

5. National Sample Survey

The National Sample Survey (NSS), in its various rounds, collects information chiefly on birth and deaths. The estimates of the NSS are considered underestimates in comparison with the more reliable SRS, and the NSS data provides very little meaningful input for any planning or monitoring process. Special surveys are also carried out under the NSS, such as the morbidity surveys done in the 17th and 28th rounds. Here again, the data have been found to have gross deficiencies and limitations in providing useful inputs for the planning and monitoring process.

6. Family Welfare Statistics

These are organized and collected by the Evaluation and Intelligence Division of the Department of Family Welfare, Ministry of Health and Family Welfare. Guidelines and manuals have been provided for systematizing the arrangements for collecting information from the periphery, as well as for compiling it at district and state levels for forwarding to the central government in the form of periodic statistical reports. These publications give instructions, for uniform adoption, on the maintenance of records at the peripheral units, the PHCs, and the Family Planning Bureaux at the city, district, and state levels, and on the compilation and submission of periodic returns by these agencies. These records and returns are intended to indicate the results achieved by the different operational units, ultimately leading to an assessment of the progress of the programme.

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7. Management Information and Evaluation Systems

The Central Bureau of Health Intelligence (CBHI) in the Directorate General of Health Services, Ministry of Health and Family Welfare, has established an integrated management and evaluation system (MIES) for the entire health and family welfare programme in the country. According to the MIES approach, records are to be maintained at the subcentre level for baseline information and different service activities in primary health care. Based on these records, the Health workers, male and female, are to compile monthly reports under various subheadings, such as communicable diseases, MCH, immunizations, family planning, health education activities, vital statistics, subcentre clinics, treatment of minor ailments, home visits, and other activities. The reports are to be scrutinized and compiled by the health assistants (supervisors) at the PHC. On the basis of the reports of the supervisors, the statistician at the PHC is to compile the PHC report. This report is to be examined and finalized by the medical officer at the PHC, who should be able to use the information for local monitoring purposes during monthly meetings and on field visits.

The monthly PHC reports are sent to the District Health Officer, for scrutiny and compilation into a district monthly report, which is then sent to CBHI, New Delhi. The CBHI is to collect the reports and send them to the National Informatics Center for computerization of data and generation of output tables.

B. Towards Computerized Information Systems (NICNET and DISNIC)

1. In view of the large-scale generation of information by various sources in all the sectors including health, many of the concerned departments have set up computer systems on varying scales. The major organizations include the Planning Commission, Department of Statistics, and the Registrar General's office. The National Informatics Center (NIC) was set up in 1975 by the government under the Department of Electronics, presently under the Ministry of Planning, to promote computer-based information systems in the country.

2. During the last 13 years, NIC has made considerable progress. Besides linking the 59 government ministries/departments through a computer network (NICNET), NIC helps the departments find solutions to problems related to further development of information systems.

NIC is presently attempting to extend NICNET to cover the 23 state capitals as well as the 438 districts (DISNIC) in the country, to help improve planning and monitoring of development schemes, and to provide a quick information system linking them to the center. NIC is aiming to use satellite communications for

connecting districts of the state systems to the regional systems. For the health management information system under DISNIC, the Health and Family Welfare system has been categorized into five functional modules: (a) health infrastructure, (b) family welfare activities, (c) medical stores, (d) national disease control programmes, and (e) plan schemes and progress.

3. Institution of computerized information systems will undoubtedly be useful in providing rapid access to specific information. It remains to be seen how efficiently this may solve the problems faced today surrounding the acceptability and credibility of information. These problems result from: (a) outdated and inadequate database, (b) qualitative or soft data, and (c) deficiencies of 'real systems' and 'simulation' data.

IV.

A. Health research organization in India

1. Organized medical research in India dates back to 1894, when the Indian Medical Congress appealed to the government to set up a research institute. Considerable research activity has taken place in several fields since then. Considering the country's health indices today, 96 years later and 43 years after independence, the fruits of this research have evidently not reached the people. The need to transform "medical research" to "health research" has been recognized for over a decade. Still, while the wider aspects of health and their links with development are better recognized now and attract some attention, much of the spoken and written word has yet to be put into action.

2. The guidelines for national health planning were provided by a number of committees dating back to the Bhore Committee in 1946, which provided a blueprint for later development of health services in India. The progress made in the field of health was then reviewed by the Mudaliar Committee in 1962. The Chadah committee (1963) studied the National Malaria Eradication Programme; the Mukerjee Committee (1965) was appointed to review the strategy for a family planning programme and then to work out the details of the basic health services to be provided (1966). The issue of integration of health services was examined by the Junglewalla Committee (1967), while the Kartar Singh Committee (1973) looked into the feasibility of having multi-purpose workers in the field for health and family planning. In 1974, the Shrivastava Committee studied the status of medical education and support manpower and suggested steps in the direction of improving it. What is conspicuous by its absence in the pre- and post-independence development of health services in India is any attempt to specifically and objectively examine the input and outcome of decades of medical and health research, or any effort

to provide direction for the kind of research that needs promotion in view of the persisting problems. The result, as a senior health researcher puts it: "a plethora of descriptive, repetitive, worthless and unutilizable research that has very little relevance or meaningful application to the process of national health planning or improving the health of the nation."

3. In spite of the numerous agencies engaged in various kinds of health research - the network of national institutions of the Indian Council of Medical Research (ICMR), institutions supported by the national Department of Science and Technology (DST) and Department of Biotechnology (DBT), those under the Council of Scientific and Industrial Research (CSIR) and the Ministry of Health and Family Welfare, and over 130 medical colleges and university departments spread all over the country, besides the innumerable private and voluntary organizations - health research in India has been modestly organized and coordinated. The Bhore Committee reported that although the extent of research in medicine was considerable, the quality was not consistently high. It also regretted the dearth of research in medical colleges and teaching institutions. It gave priority to clinical research, and research on nutrition and social and environmental factors in relation to health and disease. The Mudaliar Committee also commented on the progress of medical research in the country. It found that most of the research activity was confined to ICMR institutions or government organizations and that the state of research in medical colleges continued to be the same as in the past.

4. The Indian Council of Medical Research (ICMR) is the apex body in India for the formulation, coordination and promotion of biomedical and health research in the country. According to the Advisor (Health), Planning Commission, very little research in the field of health is being conducted outside ICMR. Institutional mechanisms used by ICMR to implement research involves "intramural" research through its:

a. Permanent research institutions (20 in number, see figure 1), which are mission-oriented institutes addressing themselves to specific health topics like tuberculosis, leprosy, cholera and diarrhoeal diseases, viral diseases, malaria, vector control, nutrition, reproduction, immunohematology, cytology, etc.; and

b. Regional medical research centres (6 in number) which address themselves to regional health problems and also aim to strengthen or generate research capabilities in different geographic areas.

"Extramural" research is promoted through:

- a. National Task Force projects;
- b. Setting up centres for advanced research in selected departments of medical colleges, universities and non-ICMR research institutes;

c. Open-ended research on the basis of grants-in-aid received from scientists in non-ICMR research institutions in different parts of India; and

d. Fellowship programmes mainly aimed at human resources development.

5. Application of sound epidemiological and statistical techniques is essential for continuous situational analysis of diseases prevalent in any community. Epidemiological tools are applicable not only to the study of communicable diseases but also to the monitoring of all deviations from health. The existing state of epidemiological services in the country presents a very dismal picture. They have not developed side by side with the rapid development of health services. The existing organizations involved in epidemiological services are:

a. Central Bureau of Health Intelligence (CBHI)

b. National Health Programmes

c. National Institute of Communicable Diseases (NICD)

d. Other institutes, which include the All India Institute of Hygiene and Public Health, Calcutta; National Institute of Virology, Pune; National Institute of Cholera and Enteric Diseases, Calcutta; and National Institute of Health and Family Welfare, New Delhi.

The status of epidemiology in the various states and union territories is far from satisfactory. Most states have neither epidemiological cells nor any personnel working as epidemiologists. Although full-fledged bureaus of health intelligence or health statistics have been set up in a number of states, they are not integrated with the division of public health or communicable diseases in most places. In some states, health statistics remains the concern of some department other than health. And whatever data are generated are seldom used either for analysis or for action. Recognition of epidemiology practically ceases to exist at levels below the district. The information collected is simply used for onward transmission. Even at the state level, the only epidemiological exercise undertaken is consolidation of reports received from the periphery. Feedback on analyzed information and its downward transmission to Primary Health Centres, so vital for local action, is virtually non-existent.

Research in Biostatistics is being conducted at the two Institutes for Research in Medical Statistics located at New Delhi and Madras. Their role has been identified to be in formulation, conduct and analysis of major collaborative and multicentric studies.

6. There is a conscious effort by the Government of India to sustain and promote research in traditional systems of medicine. There are four Central Research Councils to initiate, aid, guide,

develop, and co-ordinate fundamental and applied scientific research in Ayurveda and Siddha, Unani, Yoga and Naturopathy, and Homeopathy. These councils are fully financed by the Central Government. Not much is published and disseminated about their priority areas of research, action or contribution to improving the existing public health system.

7. At the state level, health research is expected to be conducted by state health departments, medical colleges, and university departments. Observations made in a baseline assessment for the INDIA-INCLEN programme reveal that research is not at all a priority in Indian medical colleges. Research or publications have no impact on careers and no influence on promotions. There are no incentives for research apart from personal motivation, and the funding sources are meager. Research needed for acquiring a postgraduate qualification is looked upon by both students and faculty as a ritual formality and is usually a sterile exercise.

8. Several voluntary non-government organizations (NGOs) and private institutions are also conducting research in health, the former being prominent in the much needed research at grass-roots level, predominantly in the field of health services delivery. It has been observed that over 50 percent of research undertakings in health services research are run by non-government agencies-- Indian or foreign. Of the others, many are partly supported by funds from agencies abroad. Unfortunately, there is little networking or coordination among NGOs themselves, and there have been few attempts at evaluating their projects or institutions. Clinical research conducted by large private hospitals and medical colleges is also uncoordinated and unmonitored.

9. National and multinational pharmaceutical companies spend a large proportion of their research allocations on establishment and salaries, and in some cases on market research for their products. Few, if any, of their projects aim at developing new drugs or have strategies suited to solving health problems of the country.

10. A major lacuna in the health research organization of the country has been an ever-widening communication gap between the health researchers and the policy-makers and planners. Dissemination of research findings is poor, research outcome often ambiguous and not translated or communicated in the language a busy policy-maker will grasp and be able to implement. As a result, decision-makers are reluctant to go by the word of researchers or their findings, while the researchers believe that research is used for policy making only to the extent that it suits the convenience of the policy-maker. The National Institute of Health and Family Welfare conducts in-service training courses for personnel at all levels including policy-making officials, and undertakes operations research and evaluation of major

schemes. Mechanisms seem to exist at many levels to facilitate research inputs into the planning apparatus, but they need to be activated and their meaningful application encouraged.

B. Manpower and resources for health research.

1. Accurate figures or even estimates of total health research manpower in all the three sectors in India -- government, non-government voluntary, and private -- are not available. Health research institutions do face the problem of acquiring researchers in the areas where research is needed most. These are also the areas which are neglected, and include health economics, biostatistics and epidemiology, health care management, operations research, and research in behavioral sciences. Health research institutions are not even accorded the status of medical research laboratories, which, although considered more glamorous, do not themselves enjoy a very high status. There are few incentives for pursuing a research career, since no attractive career structures are available.

A senior researcher and technologist in the country describes the situation this way: "A lot of research for development in India today is far removed from real life. Our administrative style is too inhibiting and out-of-date. There is neither pressure nor incentive for developing practically relevant ideas, processes or designs. The creative scientists and technologists, as well as their sterile, unproductive colleagues, plod on side by side, secure in their jobs, not distinguished from each other. There is not enough concern for creativity and productivity. The inspired few achieve, but the majority drift along. There is no great demand to get greater return from our research and development investments. Purposive science and technology are not yet here."

Among many working with non-governmental organizations and private institutions that conduct health research, a sense of insecurity prevails. This insecurity stems from the paucity and uncertainty of funds, lack of opportunities to receive specialized training in their own areas of work, and excessive dependence on charismatic personalities around whom many of the organizations are built.

2. The situation of research manpower in the field of health and its development has failed to change significantly, despite the following observation and recommendation of the joint report of Indian Council of Medical Research and Indian Council of Social Science Research on "Health for all: an alternative strategy": "The medical officers in charge of the Community Health Centres, the District Health Centres, and all the administrative ranks and posts equal to or above these should either possess qualification of a postgraduate degree in Public Health, or in case of those possessing a postgraduate degree in clinical medicine, a

postgraduate diploma in Public Health. This would necessitate substantial increase in the facilities for higher training in public health specialties such as Health Administration, Epidemiology, Public Health Engineering, Occupational Health, etc. Today we have only one institute, i.e., the All India Institute of Hygiene and Public Health at Calcutta. We recommend that a chain of such postgraduate institutes in Public Health (Schools of Public Health as in other countries) should be established on regional basis."

3. The Department of Science and Technology (DST) undertakes surveys to collect Research and Development statistics in the country. Data is collected according to guidelines laid down by UNESCO, in which each research project is assigned to some specific objective, after which aggregation is attempted. This being operationally unfeasible for DST, they have assigned each major scientific agency in the country to a specific objective depending upon its predominant activities. The statistics on Research and Development manpower depicted by the DST is seen in figure 2. This, however, fails to give a real and complete picture.

4. The composition of health research spending is difficult to determine because of the involvement of numerous ministries and departments in funding health and related services. Medical services, public health and medical education are under Department of Health in the Ministry of Health and Family Welfare. While expenditure on maternal and child health, including universal immunization, comes under the Department of Family Welfare, that on drinking water and sanitation is under the Ministry of Works and Housing. At present, urban water supply is the responsibility of the Department of Urban Development, while rural water supply is the responsibility of the Department of Rural Development in the Ministry of Agriculture. Health-related research is also funded by the Department of Science and Technology (DST), the Department of Biotechnology (DBT), and the Council for Scientific and Industrial Research (CSIR).

5. A senior health planner explained that the government is aware of the need to promote health research, since health is considered worldwide as a measure of development. According to him, the proportionate rise in the actual spending on health and health research from the sixth plan to the seventh plan reflects the above fact. The actual total budgetary spending went up by about 70% from the sixth five-year plan to the seventh five-year plan, from Rs.1,100,000 million to Rs.1,800,000 million. The spending on health and family welfare rose by 110%, from Rs.28,000 million to Rs.66,000 million, while the actual money spent by ICMR, the single major health research agency in the country stepped up by 300%, from Rs.500 million to Rs.1,500 million. However, he hastened to add that it would be impossible to achieve all those brave resolves for reaching health for all

by AD 2000, with such a meager allocation of resources for health.

6. A recent research report for the Commission written by Murthy and Deodhar gives a break-down of the Central Government's health research budget for the year 1987-88 as follows:

Indirect funds:

Indian Council of Medical Research	Rs 400 million
Indian Council of Social Science Research	Rs 70 million

Direct funds:

Ministry of Health	Rs 200 million
Other Departments	Rs 170 million
Total	Rs 840 million

In addition there are research funds from foreign funding sources (about Rs 70 million), private funds (Rs 40 to 70 million) and state government budgets (about Rs 20 million). Thus the total resources available for health research are estimated to be Rs 1,000 millions per year. This amount represents 0.027% of the GNP and 2.2% of the government's total health expenditure.

The main findings of the report include:

- a. Research funding received by medical colleges and university departments is very low, and research is seen as an ivory-tower activity with no immediate practical application.
- b. The budget allocation for application-oriented research is a mere 20% on the background of the fact that technologies for solving most of our major health problems are available and the bottlenecks are in operationalization and implementation.
- c. Involvement of private sector in both conducting and funding research is negligible.

C. Health Research Priorities

- 1. There has been no clear-cut documentation or articulation of the health research priorities of the country. The national research priorities in health are said to be consistent with national health priorities. It has been stated that during the earlier five-year plan periods, the aim was to create a suitable system and infrastructure for carrying out biomedical research in the country. When the seventh plan was launched, the nation had a good infrastructure in several disciplines of health research, especially communicable diseases, family planning, nutrition,

environmental and occupational health, etc. Programmes were accordingly identified for the seventh plan with greater emphasis on the health care delivery system and relevant research.

2. The major areas for research during the seventh plan (1985-90) have been vague and heavily biased towards laboratory-based research:

- a. enlarging the scientific basis of preventive medicine and health promotion;
- b. development of immuno-diagnostic tests to facilitate the epidemiological study of common diseases and their control;
- c. development of linkages between biomedical research systems and the health care system, with special attention to promotion of research in immunology, molecular biology, genetics and genetic engineering.

3. The National Health Policy (1983) accords high priority to "applied, operational research, including action research for continuously improving the cost-effective delivery of health care," with a major emphasis on communicable diseases responsible for a substantial proportion of morbidity and a third of mortality in India. The research efforts of ICMR in communicable diseases cover a wide range of activities, including:

- a. evolving and evaluating newer therapeutic regimens and innovative disease control strategies;
- b. operationalization of proven therapeutic regimens;
- c. exploring potentially useful immuno-prophylactic agents;
- d. operations research for effective delivery of existing vaccines;
- e. basic research aimed at development of simple, sensitive and specific tests for the diagnosis of common infections, and tools for research in immunopathology of infections;
- f. epidemiological studies to monitor changing trends in morbidity and impact of intervention programmes;
- g. operational research for improvement of delivery of primary health care.

4. While some change appears to be occurring with greater recognition of the importance of health services research, clinical and biomedical research have always been favored over epidemiological and field-based operations research. As a senior ICMR researcher put it, the first to suffer in the event of

reduced allocation of funds are studies other than clinical and basic biomedical research. For instance, during the seventh plan period, some of the major studies that were dropped included district-level operational projects in Primary Health Care delivery, and mortality and morbidity studies in women of reproductive age group. One of the major concerns expressed is that good field-based research proposals for grant-in-aid are few and far between. The paucity of health services research projects in comparison with other areas of research is seen in figure 3. Many health research institutions have neither the expertise, capacity, nor inclination to carry out research relevant to the problems in the field.

5. Murthy and Deodhar, in their study for the Commission, compiled information from 298 institutions engaged in health research. A broad division of these institutions showed that 67.5% (201) of these institutions are engaged in clinical and biomedical research, with the rest conducting some kind of action or policy research. This is despite the fact that our failure in improving the health status of the people is primarily a result of inefficient application of the available knowledge and technology.

6. Tuberculosis presents a classic example of the priorities accorded to the type of research conducted at various levels.

The facts about the disease are well known, and the gaps in our knowledge are recognized. With the decade-old knowledge and technology available to us it is possible to suspect, diagnose, treat and cure a majority of tuberculosis cases at the village level through a paramedical worker, with a doctor playing only a supervisory role. The main obstacles include long duration of treatment, non-availability of a truly effective vaccine, and absence of reliable serological and immunological tests to screen for early diagnosis, and to monitor treatment and cure.

How effectively has available knowledge and technology been applied to tackle the problem of tuberculosis? The only attempt to assess the magnitude of the problem of tuberculosis in the country was made by ICMR in 1955-58 when a National Sample Survey was carried out. It showed that the prevalence rate is about 19 per thousand population and is same in urban and rural areas. The National Tuberculosis Programme has been in operation all over the country for over 25 years. Highly effective drugs for short-course chemotherapy have been available for about a decade. The present estimates are that there are 10 million cases of pulmonary tuberculosis, and that 400,000 people die of TB every year. In spite of all the efforts, which appear faultless on paper, today's tuberculosis morbidity and mortality rates are identical to those recorded in the 1955-58 National Survey.

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The major problems in tuberculosis control include:

- a. a very low case-finding efficiency of 30%;
- b. a case holding efficiency of 35%;
- c. chemotherapy efficacy in patients who take regular treatment is 90%, and as a result
- d. only 19% of patients in the community are successfully treated under the National Tuberculosis Programme;
- e. not much is known about the large number of patients who seek treatment at private clinics which do not notify central authorities;
- f. high costs of short-course chemotherapy.

The highlights of ICMR research in tuberculosis are as under:

- a. Clinical trials on chemotherapy: The major focus of research in tuberculosis has been on clinical trials with various combinations of drugs. About 7 standard regimens are already known. More research continues to try out more drug combinations.
- b. Biotechnology: Research activity in biotechnology aims at evolving simple and rapid diagnostic procedures in tuberculosis. It is proposed to establish a molecular biology unit for application of genetic engineering techniques to develop immuno-diagnostic and immuno-prophylactic agents.
- c. Immunological studies: These include studies on cell-mediated immunity in various stages of pulmonary tuberculosis. The aim is to advance basic knowledge about the host response to tuberculosis.
- d. Clinical epidemiology: The ICMR has established an Advanced Centre of Clinical Epidemiology Research and Training in Madras. This unit trains undergraduate and postgraduate students and carries out epidemiological research on various diseases including tuberculosis.

The following are some of the major research and information aspects of tuberculosis that have received scant attention:

- a. Information on extent of the problem: The magnitude of the real problem of tuberculosis is not known. Estimates are based on number of patients who are diagnosed and treated by Public Health System and Hospitals only. Information from private clinics is not available, although 70% of doctors are in private practice and 70% people first seek advice from a private doctor.
- b. Epidemiological research: The impact of the control measures cannot be ascertained without follow-up epidemiological studies. Such studies are lacking. The magnitude of drug resistance prevalence in tuberculosis is unknown.
- c. Operations research: The social and operational constraints

responsible for low efficiency levels of case-finding and case-holding activities have not been studied in depth.

d. Developmental research: Few studies have been done to develop new strategies for control with optimal use of available tools. Experimental projects like active versus passive case finding, vertical versus horizontal programme management, control activities through networks of private practitioners, etc. could help in reviewing the present strategies or developing newer and more effective strategies of control.

e. Economic research: Research on various aspects of costs of tuberculosis control are few and far between. Cost-benefit and cost-effectiveness analyses of tuberculosis control measures have not been attempted.

f. Behavioral research: Research required includes more studies to determine patients' help-seeking behavior, KAP studies on use of private and public health services for tuberculosis, studies on defaulters to known causes and on interventions for non-compliance, etc.

The end result of even the most relevant and applicable piece of research is little beyond a publication, mostly in an international journal. Research in tuberculosis, as in most other areas of health in India, is dominated by clinicians who, by virtue of their training, care most for the patient, less for his family, and least for the community he lives in. The outcome is concentration of research mainly in the areas relevant to the day-to-day care of patients.

EPILOGUE

1. Research is an essential tool for development. No attempts have been made so far to define the kind of research that deserves priority. The concept of essential national health information and research focuses upon the type of health research that is essential for development. It stresses the need for identifying priority health research areas in specific locations. It broadens the scope of conventional health research by incorporating essential health information. The point is that the less affluent countries can least afford to plan and operate health services in the absence of a certain level of indigenous capacity for generating reliable baseline information and conducting research. In locations where research does occupy a prominent place, its emphasis must shift.

2. The Indian health scene lends itself to the concept of essential national health information and research. One facet of the health sector in India is its weak information base. Health and family welfare policy formulation are handicapped by

inadequate vital registration, mortality and morbidity data, poor service statistics, limited availability of KAP survey findings and programme, cost and budgetary information. The need therefore is to build up a reliable health information base of a dependable quality through a network of epidemiological and economic services.

3. A vast amount of dispersed data on various diseases and programmes does exist. Generation of information takes place solely for onward transmission and ends up in an ocean of information of poor quality, questionable reliability and modest utility for policy formulation, planning or implementation. Few institutional mechanisms exist to turn research into information and feed it into the planning apparatus on a continuous basis. Such mechanisms need to be set up, activated and enhanced at district, state and national levels.

4. Health research in India has a very long history. Considerable research activity has been taking place, albeit confined chiefly to the Indian Council of Medical Research and its affiliated institutions. However, research has focused on the medical aspects of health, notwithstanding the fact that it has been attention to non-medical dimensions that has helped to improve health in most affluent and a few less affluent parts of the world. In the medically-dominated research scenario, many a health research finding, highly relevant to practical problems in the field, go unutilized due chiefly to poor communication, inadequate dissemination and a strong bias of decision-makers towards medical interventions rather than non-medical ones that strongly influence their day-to-day lives. Efforts to study the research conducted so far and its impact on planning and implementation could be rewarding in highlighting the shortcomings, guiding selection of priority areas for future research, improving research quality and utilization, strengthening research capability, and promoting essential research in a focused manner.

5. Practicing essential national research calls for a multi-pronged approach and actions at various levels. The first and the foremost is appropriate indigenization of the concept so that it is not seen and opposed as an ad hoc adoption of a borrowed, alien idea. Mobilization of the local, state, national and international resources could be the next major step. A prerequisite for this would be managing a perceptible shift in the emphasis from laboratory-based biomedical and basic research to field-based applied and operations research. Identification of priority areas of and capabilities for research, including those fields where basic frontier research needs promotion, could be undertaken as a priority task. The gaps in the present infrastructure, manpower and training needs would then come to the fore. Some of the essential areas in health research that have long been neglected, such as epidemiology, biostatistics,

health economics, health management, social and behavioral aspects of health, etc., are well acknowledged as the ones that need immediate promotion. Concerted efforts to focus the decision-makers' attention on priority health research could in itself be a modest but good beginning. Essential national health research's long-term success would depend on the commitment of its promoters, a healthy and durable coordination and collaboration within and among the government, voluntary and private research agencies, and an informed participation of bureaucrats and politicians.

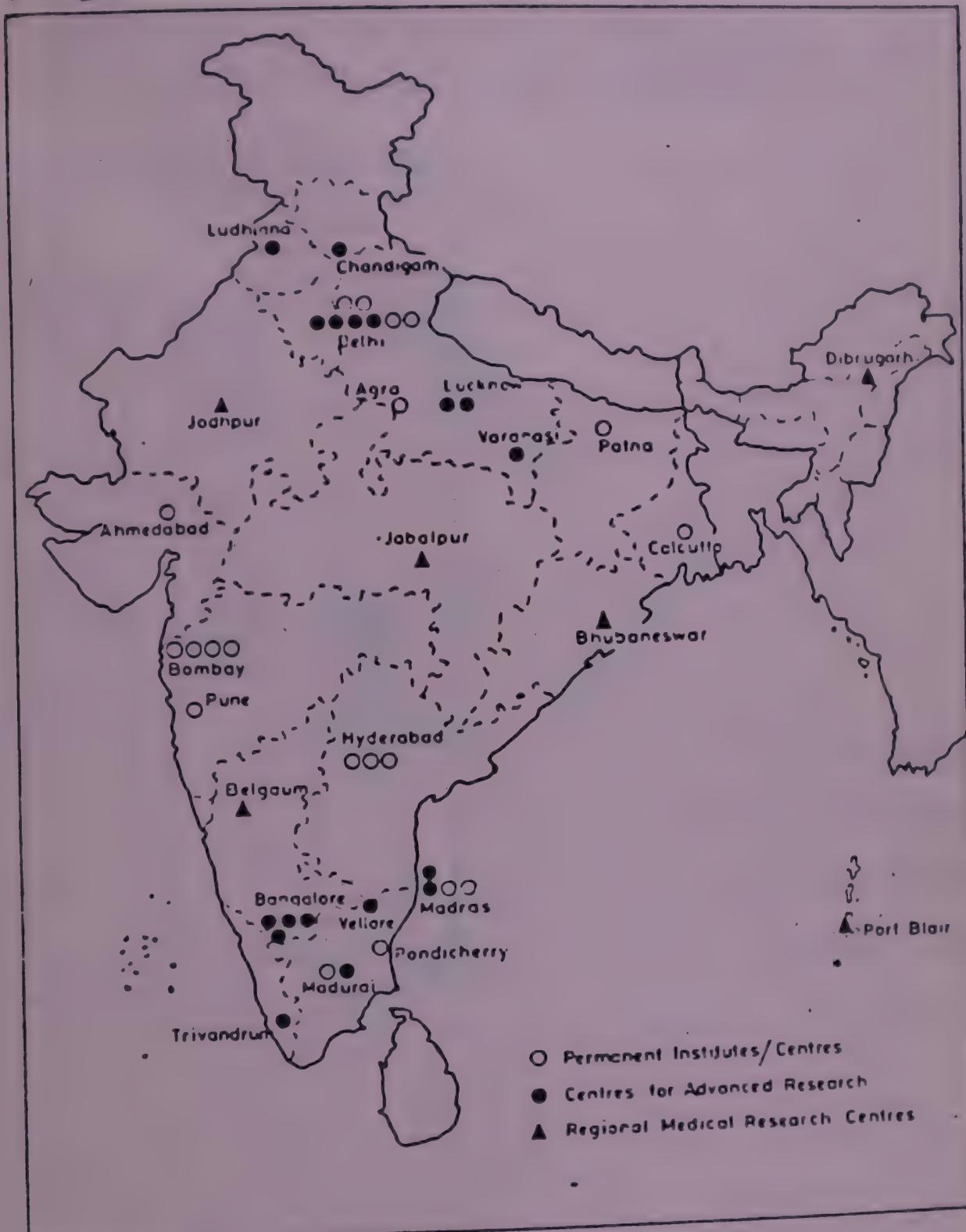
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FIG. 1



ICMR Institutional Network

FIG. 2

R&D MANPOWER BY QUALIFICATIONS AND FIELD
OF SCIENCE AS ON 1ST APRIL, 1986

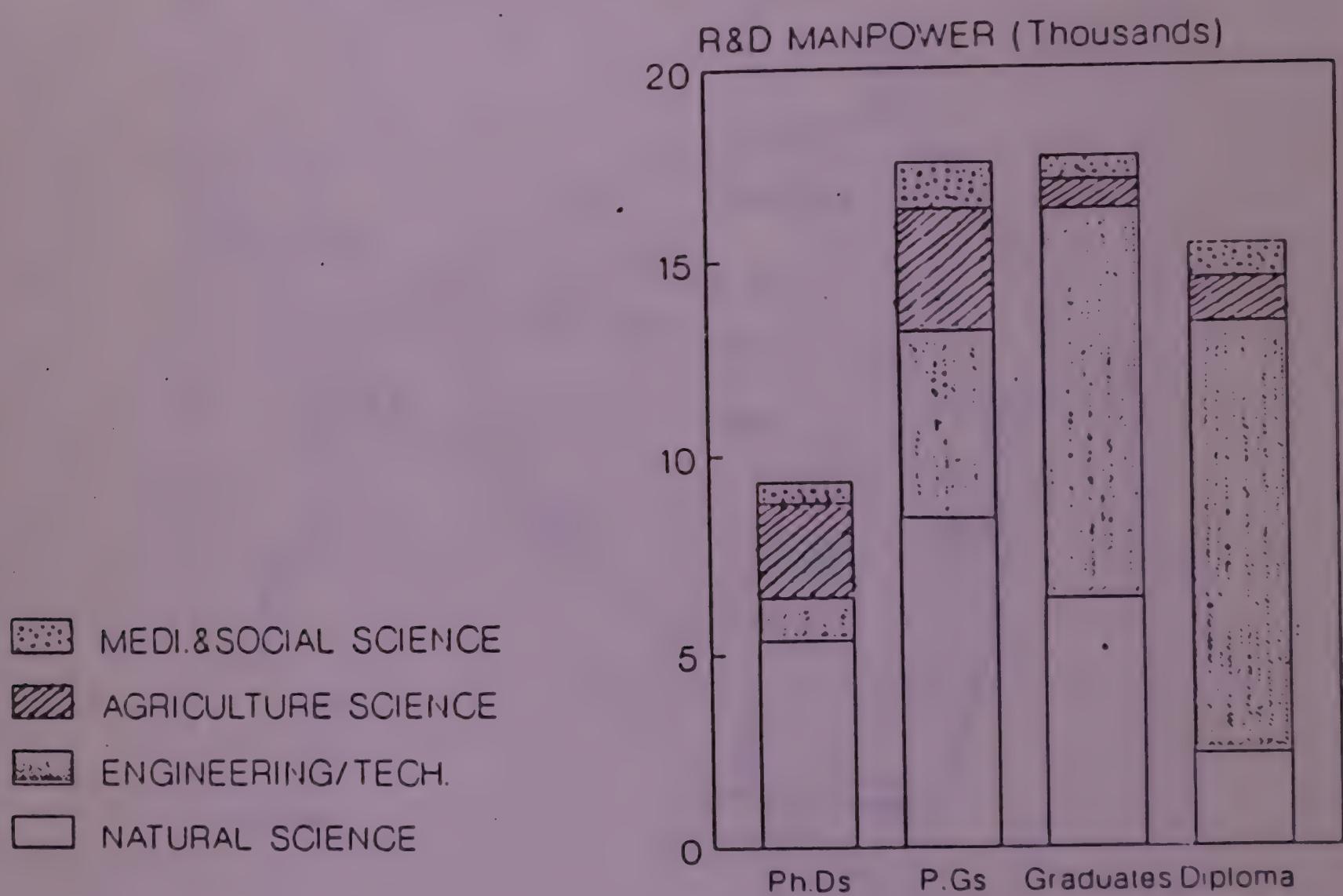
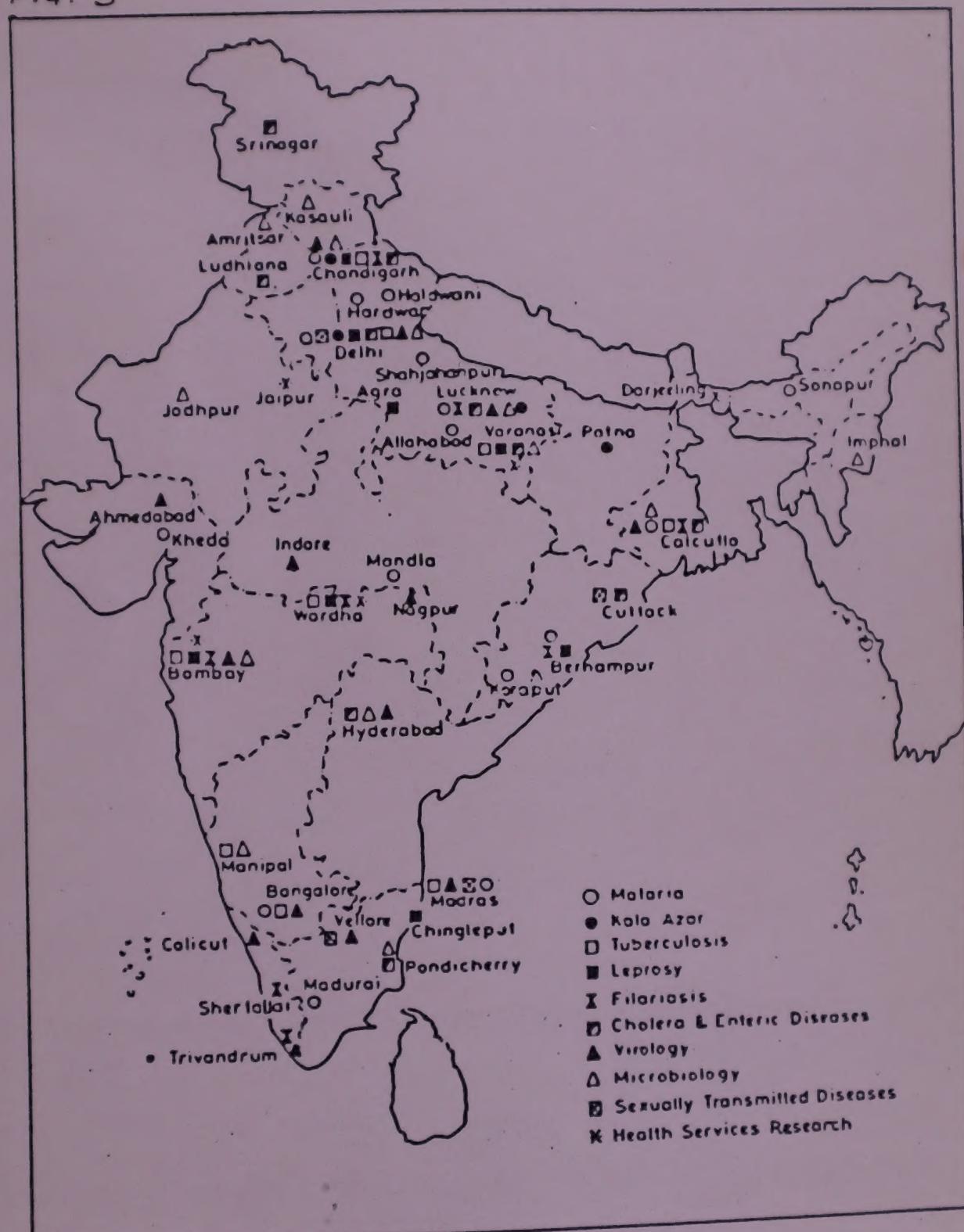


FIG. 3



Major ICMR Research Projects on Communicable Diseases
and Health Services Research

